

**An Analysis of Current Value-Based Payment Frameworks applied in Oncology: A Payer
Perspective**

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Submitted to the Graduate Faculty of the
Department of Health Policy and Management of
Graduate School of Public Health in partial fulfillment
of the requirements for the degree of
Master of Health Administration

University of Pittsburgh

2020

UNIVERSITY OF PITTSBURGH
GRADUATE SCHOOL OF PUBLIC HEALTH

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April 1, 2020

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2020

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Abstract

In the United States, cancer remains one of the leading causes of death, as well as one of the most expensive conditions, across all medical domains. In efforts to address this public health concern, health systems are implementing new payment structures to improve quality and lower the cost for cancer services. The number of Value Based Programs (VBPs) and Alternative Payment Models (APM)s continue to grow, despite numerous challenges discussed in literature and industry. Under the umbrella of CMS, The Health Care Plan Learning Action Network (HCPLAN) regulates and measures the number of payer and provider contracts tied to various quality measures, but the question of whether or not APMs improve clinical value through a reduction of cost and improved patient outcomes remains unanswered. This paper explores the complexity of APM adoption within the realm of oncology and highlights additional challenges that health systems potentially face when considering payment implementation. The findings of the paper suggest that the need for clear definitions of cancer care, patient populations, strong data reporting capabilities, and scope of APM adoption are paramount before implementation.

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Preface

A special thank you to Dr. Lindsay Sabik and William Slivka for their time and commitment in helping me develop this paper. An even bigger thank you for the conversations and advice outside of school that have helped launch my career.

1.0 Introduction

The United States healthcare system is widely accepted as a complex arrangement of organizations and agencies that operate amid an increasingly uncertain regulatory landscape. In recent years, much of the focus has been centered on the Federal Government's role in healthcare payment reform. Traditionally, payers and providers operate in a fee-for-service (FFS) environment, in which payers reimburse providers for rendered health services, based on contractually agreed upon rates. The common critique of the FFS payment model is that it incentivizes providers to maximize the number of health services rendered in efforts to increase reimbursements, which ultimately increases cost. Health policy makers argue that a shift towards value-based payment (VBP) will reverse quantity driven incentives by reimbursing providers based on the value of delivered care. They also argue that the move to VBP will decrease health expenditures and improve overall patient outcomes on the macro-level (CMS, 2020). In essence, this payment reform places supplemental financial risk onto provider systems, theoretically encouraging them to limit unnecessary care and improve quality. Another rationale for payment reform is the overall rise in healthcare expenditures, which grew 4.6% in 2018 and represented 17.7% of the nation's total Gross Domestic Product (GDP). The Centers for Medicare and Medicaid Services (CMS) also reports that national health spending is projected to grow at an average annual rate of 5.5% across the next decade, projecting health expenditures as a share of GDP to reach 19.4% by 2027 (National Health Expenditure (NHE) Fact Sheet, 2020). This national discussion and continued increase in healthcare costs has resulted in creation of VBP and Alternative Payment Models (APM) through CMS. Regulators, payers and providers work

together to construct APMs for a given population or a specific clinical condition, in order to appropriately measure cost and quality outcomes and reimburse providers accordingly.

In 2015, The Medicare Access and CHIP Reauthorization Act (MACRA) was signed into law creating the Quality Payment Program, which includes the Merit-Based Incentive Payment System (MIPS) and APMs (MACRA, 2020). The overarching goals of these VBPs are to fulfill the “Triple Aim”, which strives to simultaneously improve individual care, maximize patient population health outcomes and reduce cost (IHI, 2020). In the same year, The U.S. Department of Health & Human Services (HHS) announced a goal of tying 30% of all FFS Medicare Payments to quality or value through APMs by 2016 and 50% by 2018. Also in 2015, CMS established the Health Care Payment Learning & Action Network (HCPLAN) in efforts to achieve these goals by influencing payers and providers to adopt APMs and other VBP approaches, across both the public and private sectors (HCPLAN, 2019). Although VBP legislation has been passed and APMs have been implemented across some areas of the healthcare ecosystem, literature shows numerous issues in their application. Some of the problems include the difficulty in defining quality, calculating clinical value as it relates to cost, and addressing the nuance of a single clinical domain. In the realm of VBP, the terms quality and value are often used synonymously across the industry. However, when describing APM adoption, it’s critical to present the clear distinctions between quality and value. In this context, quality refers to patient outcome metrics and the ability to measure provider performance, strictly from a clinical standpoint. Value is a broader term that takes both patient outcome metrics and the cost of services into consideration when measuring overall provider performance. Therefore, providers that are able to deliver services that improve patient outcomes at lower than expected cost are maximizing the overall value of care. Achieving

definition alignment and APM implementation is a large obstacle for payer and providers, especially when considering the nuance at the clinical-level.

This paper considers oncology and discusses the scale of its diagnosis and treatment complexity, in addition to the impact this branch of medicine has on overall health expenditures. The paper also explores the impact cancer management has on provider billing and reimbursement. Specifically, it focuses on the implications of APMs in oncology by highlighting some of the major challenges payers and providers encounter when implementing these complex payment models into their systems. It argues that the sheer level of nuance across the healthcare landscape requires an unprecedented amount of standardization across a single service line, in order to achieve the desired goals of low costs and improved health outcomes. First, the paper looks to build off of the current APM frameworks and offer new perspectives when considering oncology payment reform. The second aim is to highlight the difficulty of APM implementation broadly by exploring the barriers payers and providers encounter when adopting new payment models for other medical domains in the future state.

1.1 HCPLAN

In 2019, HCPLAN released its results from 2018 APM Measurement Effort, along with a new set of payment goals and an updated APM framework. The new definition of APM contracts are ones that contain two-sided risk (Categories 3B, 4A, 4B, & 4C of the framework). The new goals outline the percentage of payments tied to two-sided risk and are shown in Table 1.

Table 1. HCPLAN APM Framework

HCPLAN APM Framework				
Description	Category 1	Category 2	Category 3	Category 4
	FFS - No Link to Quality & Value	FFS - Link to Quality & Value	APMs Built on FFS Architecture	Population Based Payment
A	-	Foundational Payments for Infrastructure & Operations	APMs with Shared Savings	Condition Specific-Population Based Payment (e.g. payments for specialty services, such as oncology or mental health)
B	-	Pay for Reporting	APMs with Shared Savings & Downside Risk	Comprehensive Population-Based Payment
C	-	Pay-for-Performance	-	Integrated Finance & Delivery System

In terms of the 2018 results, HCPLAN gathered data from 62 health plans and seven State Medicaid programs, which represents approximately 77% of the total US insured population (HCPLAN Press Release, 2019). The results are listed in Table 2.

Table 2. HCPLAN Payment Goals

HCPLAN Payment Goals			
Line of Business	By 2020	By 2022	By 2023
Medicare	30%	50%	100%
Medicaid	15%	25%	50%
Commercial	15%	25%	50%

A brief summary of the results indicate that the goals of APM adoption set by HCPLAN should be attainable, given the number of APM contracts in 2018. However, there are notable limitations in the HCPLAN measurement efforts, some of which were highlighted in their report. These include the fact that only 77% of the covered lives were represented in the measurement, as not every payer or state participated. There is also the issue of varying interpretation of APM categories and metrics across the payers, as well as data and reporting challenges (HCPLAN, 2019).

The limitations in the report that were not mentioned, point to both overarching measurement problems as well as highly nuanced problems that have potential measurement implications on the macro-level. With respect to the overall measurement problem itself, the report does not discuss the connection between health utilization and expenditures as they relate to APMs. Although the percentage of APM contract adoption by line of business is known, the HCPLAN does not compare how utilization rates and the total cost of care relate to these contracts. This also holds true for outcomes and population health measurements, as it is currently unknown if an increase in APMs has a positive impact on overall patient outcomes. Further, the measurement methodology does not address the gamut of healthcare delivery, which is significant given the vast range of different types of clinical services. Moreover, each clinical area itself contains a wide array different therapeutic areas and unique patient populations. This aspect, combined with the fact that patients have highly complex treatment plans, different payer coverage, and unique providers, demonstrates added layers of measurement problems. It is therefore a prerequisite to standardize definitions of quality to this detail in order to accommodate clinical and operational nuance and ensure successful APM measurement. These considerations raise additional concerns

pertaining to the limitations of the HCPLAN APM measurement methodology, as well as the HHS Triple Aim.

The framework lists Oncology under Category 4A, as condition-specific or population-based payment. This paper looks to expand on these measurement limitations in the application of APMs across this broad medical domain by emphasizing the number of obstacles payers and providers confront during APM oncology implementation from an operational standpoint.

2.0 Oncology Overview

Oncology is the field of medicine that prevents, diagnoses, and treats tumor and cancer illnesses. The fact that cancer is not a disease, but rather a collection of related diseases is not trivial because it describes the outermost layer of complexity when considering diagnostic and treatment modalities. There are over 100 different types of cancer, each of which have unique subtypes of cancer, properties in formation, disease progression, and treatment options, among other exclusive components (National Cancer Institute, 2020). For example, Leukemia is a specific type of cancer, yet remains a categorical term to describe cancer in blood cells and has four major types, including Acute Lymphocytic Leukemia, Acute Myelogenous Leukemia, Chronic Lymphocytic Leukemia, and Chronic Myelogenous Leukemia. Each of these types of Leukemia have unique patient populations, disease progression and severity, and treatment options (National Cancer Institute Leukemia, 2020). To add onto this complexity, it's important to note that cancers have unique combinations of genetic alterations, meaning nearly every individual is impacted differently, even if they have the same cancer type (National Cancer Institute, 2020). Staging is another cornerstone in cancer treatment, which is used to determine the extent of the disease progression. The majority of cancers have four stages, with the fourth stage representing the most advanced and severe disease progression. This concept is relevant because the staging serves as the foundation for all aspects of cancer diagnosis and treatment (Brierley, J., et. Al., 2016). The staging aspect at the individual patient-level also corresponds to the large number of intricacies that can arise during cancer management, consequently leading to potential issues in claims billing and reimbursement. It's also important to note that provider billing systems often lack the capacity to capture detailed cancer staging information, which is used for important clinical decisions and

recommendations. The inability to capture cancer diagnosis information to this depth causes further complications from a systems perspective. Specifically, the failure to account for different cancer disease stages and prognoses will have serious ramifications to payer risk adjustment and reimbursement. Cancer patients in advanced stages of the disease will maintain greater risk from a utilization, cost and outcome perspective, compared to their early stage counterparts. Payers and providers must overcome these barriers as regulation for APM adoption in oncology expands its footprint. This means health systems need to consider oncology outcomes and expenditures on the macro-level, in addition to understanding the multifaceted treatment problems clinically, in order to adequately construct APMs for cancer services.

2.1 Oncology Outcomes

Disease consequences in cancer care remain in a complicated state, as cancer prevalence has declined and overall costs have increased. The number of cancer survivors in the US is expected to increase to 19 million by 2024. However, over the past decade the cancer mortality rates have been declining an average of 1.5% annually. The cancer incidence rates have also declined 0.7% annually over the past decade (American Society of Clinical Oncology, 2016). These positives are often attributed to expanded treatment options for patients, improved therapies and prevention efforts made by numerous stakeholders in the cancer community. In general, oncology outcomes are favorable; however, they are met with an increased number of treatment models and rapidly growing expenditures. The rising complexity and cost have added pressures for payers, health systems, clinicians and researchers to develop new strategies for delivering high quality oncology care. Regulatory uncertainty and payment reform have supplemented these

pressures. The new oncology APM and care delivery models are challenged with navigating this dynamic regulatory environment, while optimizing payment and care initiatives to account for the different types of cancer, disease progression, and complicated treatment plans (American Society of Clinical Oncology, 2016). Payers and providers are also tasked with aligning definitions and identifying tangible quality metrics, so that cancer patient outcomes can be measured. Finally, these systems must have the capabilities to juxtapose these quality metrics with relevant cancer service costs, in order to reimburse providers based on the value of care delivered. Similar to other areas of medicine, isolating the primary cost drivers at the clinical-level is incredibly difficult given the number of different treatment types. However, recognizing expenditures at the macro-level helps shed light onto the areas of cancer with the greatest prevalence, as well as the most expensive treatment areas. This has the potential to help payers and providers identify the biggest areas of opportunity in terms of cost reduction and quality improvement in the cancer domain.

2.2 Oncology Treatment Complexity

There are numerous difficulties that occur in the cancer treatment process that range from problems with accurate diagnoses to metastasis treatments, towards the end stages of the disease progression (Chakraborty, S., et. Al., 2012). Due to the highly complex nature of tumor development, treatment strategies that target single molecular abnormalities and specific clinical pathways has led to positive clinical responses. The ability for researchers and clinicians to develop predictive markers for immunotherapy and immune-oncology has helped clinicians determine appropriate treatment benefits for patients with complex cancers. However, there have also been major challenges addressing the multifaceted approaches to cancer treatment, as it's clear that

targeting singular clinical pathways is insufficient comprehensive treatment. The literature suggests that multiple drug combinations against several alterations of cancer indicators will likely be an effective strategy in cancer treatment. Researchers also indicate that personalized combination strategies to treat individual patients' tumor biology will be at the forefront of future cancer treatment challenges (Zugazagoitia, J., et. Al., 2016). Supplemental research pertaining to individualized cancer treatment points to the level of variability within each tumor and the necessary cancer drug treatments to combat this issue of specialized cancer growth. Specifically, researchers highlight evidence that cancer drugs are constantly evolving and the expectations for cancer drug innovation to continue, in order to continue the progression towards better treatment and patient outcomes (Falzone, L., et. Al., 2018). Cancer patients suffering from additional illnesses also adds to treatment complexity because clinicians must account for more individualized cancer management plans. The prevalence of these comorbidities can have substantial impacts on therapeutic options for clinicians, especially if the comorbidity outweighs the cancer in severity (Fowler, H., et. Al, 2020).

2.3 Oncology Expenditures

The National Cancer Institute projects the total cost of cancer to reach \$173 billion by 2020, attributing to a 2% increase in costs annually and a 39% increase from 2010. This represents approximately 5% of the total U.S. health expenditures annually (National Cancer Institute Cancer Prevalence and Cost of Care Projections, 2020). The top cancer disease types by cost are breast, colorectal, lymphoma, lung, and prostate, which make up roughly 50% of the total cost of all cancer treatments (Yabroff, K., et. Al., 2011). In terms of breaking down the total cancer cost

expenditure by medical services (i.e. hospitalizations, surgical procedures, radiation therapy and chemotherapy), there is difficulty in determining the share of cost among different treatments. This is due to a multitude of factors, including the issue of disparities in cancer treatment costs across multiple facilities, as well as the lack of total cost of cancer care data within payer and provider systems. Cancer centers often struggle to determine how much of their patients' care is delivered at different facilities, thus impeding the ability for payers and providers to identify large savings opportunities (Adelson, K., et. Al., 2016). Further complications in identifying cancer treatment cost data is potentially due to the aforementioned complexity in diagnoses and treatment. Despite these issues, data on cancer drug expenditures is more accessible, as oncology medication is a more easily defined treatment modality. The total cost of oncology medication is estimated at \$57 billion and has grown 64% over the past five years. Cancer drugs therefore represent approximately 33% of total cancer expenditures annually, 2019). By scaling the overall cancer expenditures health systems can gain a better understanding of the primary cost drivers and potential areas of savings opportunities. This could be a critical component of future APM development and implementation in oncology. However, total cancer cost data at the clinical-level is necessary for APM construction. Given the number of cost data issues surrounding most cancer modalities, cancer drug treatment is a primary candidate for foundational APM construction.

2.4 Oncology Payment Decisions

The level of nuance across this medical domain from a treatment perspective holds the potential to create operational problems from a billing or reimbursement standpoint. With the understanding that cancer treatment is incredibly individualized, developers of payment models

must account for this level of complexity when determining appropriate reimbursement rates for cancer care delivery, even in a traditional FFS environment. It is therefore likely that the move towards VBP potentially exacerbates these payment complications. It is critical for health systems to not only recognize the industry trend towards APM adoption, but also the various elements of program design that exist across the landscape. Some of the primary aspects of a VBP include the scope of measurement, performance target setting, and payment reward incentives. The decision to broaden or narrow the scope of an APM can dictate which measures health systems will be evaluated on, whether it is cost, quality or both. Further, broad APM scopes can be designed to measure quality across multiple clinical areas, although this may intensify operational burdens. The second decision pertains to the development of performance targets. Payers hold the option to set absolute or relative performance targets to participating providers depending on the available benchmarks and data reporting capabilities (Maddox, K., et. Al., 2017). Absolute targets set specific quality objectives for clinicians to meet, while relative targets consider industry benchmarks. Due to the recent inception of APMs, the required data to set benchmarks is scarce, leading researchers to suggest that relative performance targets are more easily implemented (Maddox, K., et. Al., 2017). The final major considerations of APM design are the payment reward incentives, which include achievement and improvement decisions. Payment that rewards achievement focused solely on the outcomes of the quality performance, while improvement payment can reward favorable clinical quality trends. Further, payers can hold the option to implement bonuses and penalties as they connect to payment incentives (Maddox, K., et. Al., 2017).

Additional considerations to APM adoption in oncology involve the review of broad APM adoption and the relevant terminology. It is potentially beneficial for health systems to review the

different types VBPs and APMs, along with their corresponding outcomes following adoption in other systems. It is also critical for health systems to examine the results of APM adoption in the realm of oncology to help gauge the successes and failures of different decisions made in the past and in the current state.

3.0 VBP in the Current State

From a regulatory lens, the growing emphasis on VBP has prompted the development of Medicare value payment models in particular. The five original CMS VBPs are the Hospital Readmission Reduction Program (HRRP), Hospital Value-Based Purchasing Program (HVBP), Hospital-Acquired Conditions Reduction Program (HACRP), Medicare Shared Savings program (MSSP), and the Merit-Based Incentive Payment System (MIPS). There are also a number of specialty VBP programs, such as programs for skilled nursing facilities and home health facilities. Under CMS, the aforementioned MIPS program run in tandem with APM programs and are designed to achieve objectives aligned with the Triple Aim (MACRA, 2020). With respect to value-based payment in oncology, the APM programs most closely align with this clinical domain given the HCPLAN framework. However, in addition to APM development, it is necessary for payers and providers to examine other aspects of VBP frameworks, such as bundled payments and Accountable Care Organizations (ACOs). These areas within the realm of VBP could be essential for health organizations preparing for alternative payment methods in oncology.

3.1 Bundled Payments

With the overall focus on value-based payment and the acceleration of APMs in the healthcare landscape, the number of bundled payment programs has also increased. Most bundled payment models are defined as a single payment for healthcare services tied to a specific condition or procedure for a specified time period. In order for payers to facilitate these types of payments,

the bundle must focus on a patient's entire episode-of-care. Another objective of bundled payments is to hold hospitals accountable for managing episode-based Medicare spending and promote care coordination across their services (Scott, B., et. Al., 2016). In 2011, The Center for Medicare and Medicaid Innovation (CMMI) introduced episode-based bundled payment programs in Medicare. CMMI's key initiative was the Bundled Payments for Care Improvement (BPCI) initiative. Many payers and providers have established bundled payments for particular services as an alternative to comprehensive APMs, which often have more complex designs. The BPCI was also a voluntary program that payers and providers could choose to opt into for Medicare reimbursement redesign (CMS BPCI, 2020). Outside of Medicare, commercial payers and other employer groups have also designed similar types of bundled payment models. Regardless of the line of business, the aim of the bundle remains, which is to improve quality of patient care and reduce cost, while simultaneously improving health outcomes. Further, if the desired quality or cost outcomes are not achieved, payers can hold providers accountable, which is likely why payers in other lines of business have found these models attractive. However, this provider accountability aspect can also be separated in two different forms that involve upside and downside risk in regards to their payer contracts. In downside risk models, providers must refund payers if the total cost of care within a given bundle exceeds the outlined financial benchmarks. Upside risk models enable payers and providers to share in the savings from a particular episode-based bundled service, thus alleviating some of the payment pressure for providers (CMS BCPI, 2020).

While the majority of bundled payment programs have been designed voluntarily and guided by BPCI, CMS has recently taken steps towards mandatory bundled payment programs for particular services. In 2015, CMS announced a mandatory bundled payment program for total hip and knee replacements for Comprehensive Care for Joint Replacement (CJR). CMS also proposed

new mandatory bundled payments for cardiac care. The CJR and cardiac bundled payment programs also present both upside and downside risks to payers and providers and hold similar models to their voluntary predecessors. However, there are significant differences between voluntary and mandated bundled payment programs that may have serious impacts on payer and provider performance. Under the mandated programs, providers do not have the leverage to opt out of the programs without receiving federal penalties. They also do not have input when establishing the duration or definitions for episodes-of-care (CMS BCPI, 2020). This component, in addition to the likelihood of constantly changing performance metrics, presents more challenges for payers and providers to navigate in a bundled care or APM environment.

In terms of performance of bundled payments, there has been limited research in examining its efficacy, especially in terms of measuring patient outcomes. Research also has yet to determine the unintended consequences of bundled payments. These ramifications could revolve around providers intentionally selecting a particular set of healthier patients with relatively less complex treatment plans, in order to increase the likelihood of reduced costs and favorable health outcomes. Other limitations in bundled payments mimic the issues described in APM adoption overall, which include definition discrepancies, data issues, and measurement difficulties (Joynt, K., et. Al., 2018). With respect to oncology services, literature also suggests that future bundled payments will focus on drug costs, despite the fact that Medicare Part D is currently not included in the CMS bundled care programs (Scott, B. et. Al., 2016). Although CMS currently does not mandate APMs within oncology specifically, health systems could see a rise in bundled payment regulations for this conditions, given that mandates across other clinical service areas remains a possibility.

3.2 Accountable Care Organizations

Under CMS, the Medicare Shared Savings Program (MSSP) encourages payers and providers to establish an Accountable Care Organization (ACO) in order to incentivize both systems to reduce cost and improve quality of care. MSSP is a voluntary program that offers multiple tracks to enable payers and providers to assume different levels of risk, based system capabilities and the patient populations (CMS Shared Savings Program, 2020). The performance of ACOs, as they pertain to reductions in cost and improve health outcomes is an area that requires further research. Shared Savings Programs and ACO studies have found low clinician engagement in terms of awareness and implementation of new treatment and payment changes. The determination of whether ACOs contribute positively to reductions in cost and improvements in care is still largely unknown. Reasons for the limitations of measuring ACO performance could be connected to the voluntary aspect of their structures. Additionally, ACOs could be experiencing similar issues to bundled payment programs and overall APMs with respect to data, definition, and measurement problems (Markovitz, A. et. Al., 2019).

4.0 APMs in Oncology

Analogous to the emergence of APMs on the macro-level, an emphasis on optimizing VBP in the cancer service space has also amplified due to the growth in oncology expenditures. Despite this overall industry trend and added focus to oncology VBP across major stakeholders, the majority of ACOs and federal bundled payment initiatives have excluded cancer services. This is evident in the relatively low number of APM initiatives that pertain to oncology services in the current literature. Further, the APM initiatives that have been applied to oncology have a considerable number of drawbacks to these payment interventions with respect to measurement feasibility and standardization. Comprehensive studies pertaining to the implementation of oncology APMs have identified multiple bundled payment programs, ACOs, and Oncology Patient Centered Medical Homes (PCMHs) in practice. The research indicates that the majority of these oncology AMP reported costs, but failed to report quality or patient outcome data (Aviki, E., et. Al., 2018). With the inability to measure outcomes, there are axiomatic problems in evaluation of oncology APM efficacy. The reasons for these persistent limitations can be attributed to metric issues, arbitrary definitions for value, and a misalignment of key stakeholder interests, among other complications. In the current state, comprehensive study designs for assessing oncology related APM interventions to evaluate their impact on value-based care are not available. Despite, the lack of evidence for oncology APM success rates, there continues to be a growth in the number of APMs in cancer care.

4.1 Oncology APM Calculators

Key stakeholders in the oncology community have developed value-based calculators in efforts to set the initial stage for evaluating value and cost for cancer services. Studies have highlighted the four major calculators used in value – based cancer care, which include American Society of Clinical Oncology (ASCO) Value Framework, The National Comprehensive Cancer Network Evidence Blocks (NCCN), DrugAbacus Calculator, and the Incremental Cost-Effectiveness Ratio Calculator (ICER). The value calculators themselves are insufficient for industry because they lack the ability to translate a qualitative clinical outcome into a quantitative formula for calculating value. However, they serve as important steps for facilitating discussion on cost and value as they pertain to cancer services. Another important note is that these calculators are only applied to the costs and treatments of specialty cancer drugs and do not address other modalities in cancer treatment. In regards to the value calculators themselves, they each hold advantages and disadvantages that can serve as a platform for future discussion in oncology APM. The ASCO Value Framework establishes explicit definitions of value between patients and providers, with the intention being the definition will align across payers as well. This is a critical component of APM discussions, as the definition of quality and favorable patient outcomes is a widely disputed topic.

ASCO defines value as the effectiveness or clinical benefit, safety, and efficiency of a drug treatment. ASCO compiles these three metrics in an aggregated metric known as the Net Health Benefit (NHB). The NHB is defined as the difference between the mean effectiveness of a new treatment and a known standard treatment. If the NHB delivers a mean effectiveness score above the standard treatment, then the new drug will be considered higher quality. This explicit definition of quality is the inherent advantage of the ASCO Value Framework; however, there are major

drawbacks with respect to cost. ASCO does not define cost in its NHB calculation, which is an evident issue when establishing definitions needed for APM adoption.

The NCCN also has advantages in overcoming the quality definition issue. NCCN accomplishes this by the development of evidence blocks comprised five different value measures including toxicity/safety, efficacy, quality of evidence, consistency of evidence and affordability. All of these measures have been integrated for 28 tumor types. The value itself is calculated by NCCN panel members for a given tumor type, who score each measure on a one-to-five scale. Panel members utilize their clinical experience, along with published data for specific patient population types to determine the score for each measure and higher values indicate overall higher drug treatment quality. Similar to the ASCO Value Framework, the main disadvantage in the NCCN framework is the cost component of the calculation. The evidence blocks do not clearly define cost and the notion of affordability is highly subjective, as there are multiple panel members with varying definitions of cost effectiveness. This can ultimately lead to arbitrary definitions of affordability. Further, the majority of panel members are comprised of academics and the literature suggests this is another potential drawback, given clinical observations in the real-world may greatly differ from observations in clinical research. Reasons for this are likely due to the vast difference in cancer patient populations in research settings (such as those undergoing clinical trials), compared to overall cancer populations.

The DrugAbacus framework uses calculators that include clinical toxicities and is able to contrast drug value and costs; however, this method is only used for research purposes and has not been implemented for clinical purposes. Finally, ICER defines the quality and cost of cancer drugs by the difference in cost between two possible drug interventions divided by the difference in their effect. This final result helps represent the average incremental cost associated with a drug

intervention and is widely considered as highly advantageous when considering cancer drug costs and quality simultaneously. When reviewing the constraints, ICER tells the same story as the other calculators and falls short when defining an appropriate cost (Nabhan, C., et. Al., 2017).

Overall, value – based calculators are pivotal in initial discussions across APM adoption because they offer methodologies to help define quality of care. Their frameworks consider outcomes at the clinician-patient level and are able to account for the vast treatment complexity across the oncology spectrum. However, it is likely for this very reason that they fall short when assimilating cost calculators. While accounting for this complexity to calculate clinical value, they are unable to assign the corresponding services into a mathematical formula to calculate cost simultaneously. Payers and providers require calculators for both quality and cost, in order to quantify value. Moreover, the calculators assume all important clinical data is accessible to both the payers and providers, which is fallacious in industry, especially when these two parties have conflicting priorities and incentives. The cost at the patient level also brings out a plethora of other complexities, including the different types insurance coverage, income disparities, and different provider preferences.

4.2 Oncology APM Initiatives

The literature indicates that the majority of APM initiatives that have been applied to cancer services fall into the major categories of bundled payment models, ACOs, PCMHs, or a combination of other integrated care models. These initiatives have been implemented in both the public space through Medicare and through multiple payers in the private sector, though there are important distinctions and practical implications across each of the APMs (Robinson, 2017).

4.3 Medicare Oncology APM Initiative

In the public sector, The CMS Innovation Center developed a 5-year Oncology Care Model (OCM) with objectives to improve care coordination, advance quality, and reduce cost for cancer services, specifically chemotherapy administration. The OCM incentivizes payer and providers to partner to join the initiative by offering performance – based bonus payments for improvements in efficiency (cost reduction) and quality. The OCM also includes a dual payment system for participating providers currently rendering services for chemotherapy treatment for a given cancer diagnosis. The first payment incorporates a Monthly Enhanced Oncology Services (MEOS) payment for the duration of the episode. The second payment is a potential performance-based payment and serves as the previously mentioned bonus. Specifically, these payments are administered by offering practices a \$160 per-patient-per-month (PMPM) for an oncology practice when patients begin their cancer drug therapies (CMS Oncology Care Model, 2020). The definition of an episode, defined by the OCM, is one that covers nearly all cancer types, presumably regardless of stage of the disease. Further, patient episodes are set to terminate after undergoing six months of chemotherapy. Patients receiving chemotherapy after six months will activate another six-month sequence of episode payments. In order to qualify for the initiative, oncology practices must demonstrate data-based quality measurement capabilities, in addition to the development of an individualized care management plan for each patient, designed to assist in navigating the complex array of cancer services (CMS Oncology Care Model, 2020). Although the OCM provides payment incentives for adoption, some of the underlying components of the OCM could have potential ramifications for providers. The OCM calculations for expenditure targets include all oncology related services (radiology, drugs, surgery, hospital admissions). Further, they include nononcologic related clinical services to patients with cancer (CMS Fact

Sheet, 2020). This is a serious implication for practices that provide oncology services to older patient populations and patients with comorbidities, especially when considering the spending targets do not adjust for disease severity. Another important element in the OCM is the oncology practices' exposure to risk with respect to drug spending, as the Medicare initiative includes drug spending in its targeted expenditures calculations. When drug spending is included in the performance initiative, alongside the other costs of care, it generates the risk of misaligned incentives from a pharmaceutical innovation standpoint. The innovation in oncological medication is a significant component for cancer care, especially in terms of improving patient outcomes. Research also points to the notion that an inclusion of drug spending in overall spending targets exposes practices to the risk of attaining high risk patients requiring more expensive cancer medications (Robinson, 2017).

4.4 Private Payer Oncology APM Initiatives

Similar to the Medicare APM initiative, private payers are also interested in implementing oncology payment mechanisms to reduce cost and improve overall patient outcomes. Recent studies highlight the comparison of oncology APM initiatives, across the major private payers in the U.S., namely Anthem, Aetna, and UnitedHealthcare. One aspect of these private payer initiatives that align with the OCM is the FFS component of oncology services. In the current state of cancer payment, both public and private payers reimburse providers on a FFS basis that include most oncology services, patient visits, chemotherapy, oncology drugs, and services that fall outside of patient visits and may not be directly connected to cancer services. Although there have been numerous policy proposals to remove FFS in place of APMs for cancer services, the status quo

has remained, which means that these initiatives have been applied to supplement FFS in oncology (Robinson, 2017). With respect to the HCPLAN measurement methodology, it is currently unknown if APM contracts built alongside FFS payment schedule are counted the same as APMs substituted for FFS entirely. The former is evidently the case in the oncology APM area and the implications of measurement and efficacy has also not been established.

4.5 Anthem APM Initiative

Anthem developed the Cancer Care Quality Program and is comparable to the OCM in that incorporates monthly payments to participating practices. These monthly payments are set at \$350 for each Anthem member utilizing chemotherapy services. The monthly payment begins and ends alongside the chemotherapy treatment itself. Anthem incentivizes providers to join the initiative through these monthly performance payments, but requires practices to register their cancer patients to their Anthem cancer database. Oncology practices must also adhere to Anthem-approved pathways in its selection across the different cancer treatments. These two requirements enable Anthem to gather clinical data, particularly type of cancer, stage of the disease, and key test results, in order to make important decisions from data not previously available in their claims systems (Robinson, 2017). The Anthem initiative strives towards reducing high cost cancer treatments, while rewarding oncology practices for favorable patient outcomes. However, there are potential drawbacks from a physician autonomy perspective, as oncologists would have certain limits on their treatment modalities.

4.6 Aetna APM Initiative

Aetna launched its Oncology Solutions initiative, which also rewards providers by offering bonus payments to oncology practices that successfully managed costs. A key difference in the Aetna initiative is that it does not provide monthly payments to practices, as OCM and the Anthem initiative incorporated. Rather this new payment model is design to increase the markup applied to generic chemotherapies administered at the practice. This design adds to the facility revenues and is built to reduce the incentive for practices to prescribe expensive branded cancer drugs. Qualifying practices must have the capabilities to handle complicated claims and clinical data, in addition to the ability to follow to clinical pathways. Aetna's initiative explicitly states that practices cannot merely rely on NCCN's drug guidelines when developing their clinical pathways, as these guidelines do not consider costs (Robinson, 2017). This initiative's potential disadvantages run parallel with Anthem's with respect to physician autonomy. Although qualifying practices receive additional revenue, from a clinical standpoint the initiative poses potential restrictions on the number of available treatment options.

4.7 UnitedHealthcare APM Initiative

The UnitedHealthcare APM initiative is unique in that it offers lump-sum payments to qualified oncology practices. These payments are based on historic revenues earned by providers from billing office-infused oncology medications. UnitedHealthcare calculates the average sales price of these drugs and reimburses providers based on the revenues they would have made from drug markups. The design is built to avoid the need to prescribe high cost oncology drugs. Also

unique in this initiative, UnitedHealthcare was able to provide results from the APM intervention. Oncology practices experienced a decrease in overall expenditures and an increase in revenue; however, the drug costs increased (Robinson, 2017). Interestingly, these results run counter to the original expectations of the UnitedHealthcare initiative, as the aim was driven primarily at reducing high drug costs.

4.8 APM Initiative Summary

In contrast to the OCM, each private payer initiative does not include drug costs when calculating total cancer expenditures to avoid stifling pharmaceutical innovation and exposing oncology practices to these critical risks of combining these costs. Medicare includes drug spending in its costs targets, thus exposing oncology practices to greater financial risks. Medicare has also acknowledged these risks and has attempted to compensate by adding adjustable spending targets to account for newly approved oncology medications. This is in efforts to alleviate the financial risk, but places more restrictions on oncology payment adjustments overall (Robinson, 2017).

In summary, all of the oncology APM initiatives build off of FFS models, which is a unique structure compared to the majority of APMs that replace FFS entirely. Additionally, it's important to note that all four initiatives avoided bundling payments when designing the payment models. There is also a potentially important distinction between bundled payments and episode-based payments as they pertain to APM development across the healthcare landscape, especially as many sources consider these terms synonymous. The former is the traditional APM structure that builds off of the BCPI and the mandatory bundled payment programs, while the latter allows health

systems the flexibility to define the specific clinical pathways. In bundled payments that include episode-based payment definitions, there is a clear beginning and end to treatment. These programs have shown most effective when the course of treatment has clearly defined timelines and the episode-of-care is easily mapped out. The nature of cancer and oncology services leads to unpredictable treatments, subsequently preventing definitive timelines. Studies point to the fact that the episodes-of-care in oncology often change unpredictably, with the key drivers of change through pharmaceutical innovation. Therefore, oncology APM initiatives are best constructed on an episode-of-care payment, avoiding the increase in the number of different payments through bundles. The literature also denotes that bundled payments place oncology practices in a position that assumes greater financial risk, which encourages practices to consolidate, often through vertical integration into larger health systems.

5.0 Oncology APM Limitations

Inconsistent definitions of value are one of the more prominent weaknesses in APM development in the healthcare industry and this is particularly evident in oncology APMs. The problem of subjectivity in the value equation has multiple issues because it depends on the lens of the stakeholder, in addition to the outcomes themselves (Gupta, D., et. Al., 2016). For example, clinicians and patients may have definitions of value that pertain to the efficacy of treatment or the overall patient experience. Meanwhile, across the sector, payers and regulators may be viewing value as more metric driven (i.e. hospital readmission reduction rates, patient medication adherence rates, etc.). Even through the lens of metric driven outcomes for defining value, health systems have difficulty deciding on which outcomes to measure. This ties back to the current lack of standardized patient outcome definitions as they pertain to value. These macro-level issues in APM adoption persist in the oncology space as well (Gupta, D., et. Al., 2016). Further research has indicated that APM implementation in the medical oncology space has introduced the unintended consequences of under-treatment. This is intuitive, as providers can anticipate financial challenges when taking on potentially high-risk patients in a value – based environment (Ems, D., et. Al., 2018). While episode-based care has indicated positive results in reducing cancer service expenditures, the challenges in constructing oncology APMs remain, predominately due to the complexity of treatment. The vast spectrum of different cancer types, facilities, and medical specialties add additional problems (Kline, R., et. Al., 2017). Further considerations regarding complexity of cancer care provide a deeper understanding of some of the underline challenges in oncology APM initiatives.

6.0 Recommendations to Health Systems

Literature and industry report consistent limitations across APM adoption broadly and within oncology specifically. It is evident that successful APM implementation for cancer services require narrow scopes with clearly defined metrics, episodes-of-care, and patient populations for a given timeframe. The recommendation for payers and providers is to consider all of the elements across different APMs, along with the range of APMs applied to oncology in other health systems. Beginning with oncology, health systems must clearly define the patient population that can most reasonably be shifted from a FFS environment to VBP one. In order to zero in on a certain patient population, a specific type of cancer, along with the exact stage of cancer needs to be targeted. The next and potentially most complicated step is defining the episode-of-care because many cancer patients have comorbidities and distinct health conditions. The number of clinical treatment pathways promotes additional challenges in this step, as payers and providers must decide on narrowing the scope to chemotherapy, specific drug treatment, radiation, or surgery. Beyond this selection, there are multiple sub-specialty treatments that must be considered when defining the episode-of-care. For example, the typical patient undergoing chemotherapy likely has multiple comorbidities, medications, and other treatment modalities such as physical or occupational therapy. In addition to achieving definition alignment on the specific patient population and treatment pathway, payers and providers must also decide on the specifics in APM development. These components involve difficult decisions surrounding performance targets (absolute or relative), payment rewards for outcomes or improvement, and the establishment of bonuses or penalties. Further decisions must achieve alignment on whether quality and cost will be considered in the overall calculation of value, as numerous APMs have only considered one or the other, rather

than both simultaneously. Following this decision, the ability to select appropriate clinical quality and cost metrics is paramount in successful APM adoption. With the specific cancer service definitions aligned and all APM construction decisions finalized, health systems still have barriers on the implementation front. The capabilities to monitor and report accurate clinical and cost data remains a potential problem, even in traditional payment environments. The overall recommendation to health systems when considering adoption of APMs for cancer services is to narrow the scope on both the clinical and payment side, in order to mitigate innumerable administrative problems due to cancer complexity.

7.0 Conclusion

With the understanding that oncology treatment is incredibly individualized, developers of payment models must account for the necessary level of detail and complexity when determining value in cancer care delivery. There are many issues related to the adoption of APMs that have impacts on shifting to VBP in oncology. The overarching critique of the models are their inability to indicate an improvement in value, patient outcomes and reduce costs. Further, there are unique challenges in cancer care that present further complications in APM adoption and implementation across this medical domain. These are related to the fact that oncology is a collection of diseases, rather than an individual condition. Moreover, cancer diagnosis and treatment are incredibly intricate and not well defined, which leads to potential issues in provider billing and reimbursement. Despite these limitations and uncertainties, it's evident that the increase in APMs across the payer and provider sectors will increase moving forward and health systems will need to embrace for the clinical, data and regulatory challenges in the future state. This is critically important for payers and providers to understand and prepare for the adoption of APMs, as CMS and the HCPLAN continue to regulate and monitor the shift to VBP, across more domains of medicine.

Appendix HCPLAN Results

Table 3. HCPLAN Results

HCPLAN 2018 APM Results					
Line of Business	Category 1	Category 2	Category 3	Category 4	Categories 3 & 4 Combined
Medicare Advantage	40%	7%	36%	17%	54%
Traditional Medicare	10%	49%	37%	4%	41%
Medicaid	66%	11%	17%	6%	23%
Commercial	56%	14%	28%	3%	30%
Total Payments	39%	25%	31%	5%	36%

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